

OPTICAL FIBER AND WAVELENGTH DIVISION MULTIPLEXTRANSMISSION LINE

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ABSTRACT OF THE DISCLOSURE

An optical fiber suitable for connection with a single mode optical fiber for wavelength division multiplex transmission, that is, a reverse dispersion fiber (RDF) having a center core 11 and a side core layer 12, wherein an apparent refractive index difference of the center core is 1.15 to 1.40%, a constant  $\alpha$  expressing a profile of a distribution of refractive index of the center core is 1.0 to 5.0, an apparent refractive index difference of the side core layer is -0.60 to -0.35, a diameter ratio ( $b/a$ ) of a diameter ( $b$ ) of the first side core layer to a diameter ( $a$ ) of the center core is 1.6 to 2.4, a dispersion value is -60 to -35 ps/nm/km and a dispersion slope is -0.40 to -0.10 ps/nm<sup>2</sup>/km when a wavelength of light propagated through the center core is the 1.55  $\mu\text{m}$  band, a transmission loss of not more than 0.35 dB/km, a ratio of loss to dispersion (figure of merit (FOM)) of 120 to 500 (ps/nm)/dB, a polarization mode dispersion (PMD) of not more than 0.15 ps/ $\sqrt{\text{km}}$ , and an effective core area ( $A_{\text{eff}}$ )

of 19 to 50  $\mu\text{m}^2$  when the wavelength of the light propagated through the center core is the 1.55  $\mu\text{m}$  band, and a bending loss at a diameter of 20 mm of not more than 5 dB/m.